

CLOTHES DE-WRINKLER AND DEODORIZER

[0001] This application claims benefit of the filing date of and priority under 35 U.S.C. § 119(e) to U.S. provisional patent application Serial No. 60/431,887 filed December 9, 2002, which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] The present invention relates to a garment treating apparatus and more particularly to an apparatus for cleaning, deodorizing, freshening and/or de-wrinkling garments.

[0003] Laundering garments, such as shirts, pants, blouses, dresses, skirts and jackets in a conventional washing machine and conventional clothes dryer, followed by ironing (if the garments are not wrinkle-resistant) is standard practice to deodorize clothing and remove wrinkles. Dry cleaning clothes is also done to achieve these results. Dry cleaning is expensive and conventional washing, drying and ironing is time consuming.

[0004] As a result, some have developed garment steamers to de-wrinkle clothing. The known garment steamers apply steam to a clothing item through a hand held wand. Furthermore, the prior art also includes garment freshening devices where the garments are placed in a garment bag and are subjected to a conditioning steam. Other known apparatus treat the garments in a garment bag and subject them to a conditioning composition without the application of steam.

[0005] To deodorize clothing, freshening sprays can be applied to the garment. It is also known to place a garment in a conventional clothes dryer with a conventional dryer sheet. This, however, can result in a wrinkled garment, leading to the need for ironing.

[0006] Accordingly, it is desirable to provide an apparatus that eliminates the need to conventionally launder or dry clean an article of clothing each time a person wants a freshened and/or de-wrinkled garment. It is also desirable to combine the advantages of using steam and a chemical conditioning composition to deodorize and de-wrinkle garments or otherwise freshen garments.

SUMMARY OF THE INVENTION

[0007] According to the present invention a new and improved apparatus for freshening de-wrinkling and/or deodorizing garments is provided. For the sake of brevity, the apparatus will be referred to as a clothes freshening device.

[0008] The clothes freshening device includes an enclosure to hold at least one garment to be freshened. A chemical mister is in fluid communication with the enclosure, the chemical mister producing a fog that is circulated around the garment to freshen the garment. If desired, a steam generator can be in fluid communication with the enclosure, the steam generator producing steam that is circulated around the garment to de-wrinkle the garment.

[0009] A method for freshening garments comprises providing an enclosure for holding garments to be freshened wherein the enclosure includes an inlet for introducing a chemical mist to the garments. If desired, steam can also be

introduced to the garment. A garment is placed in the enclosure and the chemical mist is introduced into the enclosure to de-wrinkle and deodorize the garment. Steam can also be introduced into the enclosure to de-wrinkle the garments.

[00010] The advantages and benefits of the present invention will become apparent to those of ordinary skill in the art upon reading and understanding the following detailed description of the preferred embodiments.

BRIEF DESCRIPTION OF DRAWINGS

[0010] The drawings are only for purposes of illustrating preferred embodiments and are not to be construed as limiting the invention. The invention may take form in various components and arrangements of components, and in various steps and arrangements of steps, preferred embodiments of which will be illustrated in the accompanying drawings, wherein:

[0011] FIG. 1 is a front schematic view of an embodiment of a clothes freshening device according to a first embodiment of the present invention;

[0012] FIG. 2 is a top plan view of the clothes freshening device of FIG. 1 showing steam and chemical compositions completely surrounding the clothing in the clothes freshening device;

[0013] FIG. 3 is a perspective view of a base unit of the clothes freshening device of FIG. 1;

[0014] FIG. 4 is a top plan view of the base unit of FIG. 3 with a lid removed;

[0015] FIG. 5 is an enlarged top plan view of a steamer unit of the base unit of FIG. 3;

[0016] FIG. 6 is an enlarged perspective view of an ultrasonic mister and chamber for a conditioning composition of the base unit of FIG. 3;

[0017] FIG. 7 is a perspective view of a second embodiment of a clothes freshening device according to the present invention in a use position;

[0018] FIG. 8 is an enlarged perspective view of the clothes freshening device of FIG. 7 in a storage position; and

[0019] FIG. 9 is a front elevational view of a pair of pants having a wrinkle-release weight attached.

DETAILED DESCRIPTION OF THE INVENTION

[0020] It is to be understood that the specific devices and processes illustrated in the attached drawings and described in the following specification are simply exemplary embodiments of the inventive concepts. Hence, specific examples and characteristics related to the embodiments disclosed herein are not to be considered as limiting.

[0021] Referring to FIG. 1, a clothes freshening device shown generally at 10 includes a garment enclosure 12, a fan 14 and a base unit 16. The enclosure can be a bag, such as is illustrated, but can also be a hard shell casing or any other suitable conventional housing to hold garments. For the sake of convenience, the term "bag" will be used hereafter to designate the enclosure, recognizing that a variety of other suitable conventional housings are also meant. In use, garments are placed in the garment bag 12 and steam and de-wrinkling and/or deodorizing chemicals are delivered from the

base unit 16 to the garment bag. The fan 14 is employed to circulate the steam and chemicals around all sides of the one or more garments placed in the bag.

[0022] As mentioned, while the compartment that holds the garment is referred to as a bag, that reference should not be deemed as limiting. The bag 12 can be made of a conventional plastic or other suitable material. The material should be impervious to water as well as the chemical compositions, which will be described later, that will be used to treat the garments inside the housing. The bag, or a portion of it, can be transparent so that the garment can be seen in the housing. In this way, a user of the device can see the results and determine whether the freshening and de-wrinkling cycle is complete. The bag is also collapsible in a vertical direction so that it is easily transported after disassembly. In one embodiment, the bag is pliable and light so that the bag 12 can be hung from a mounting rod 18. The mounting rod can be mounted on the base unit 16. Alternatively the mounting rod can rest on the floor or be supported on a wall.

[0023] Referring to the FIGS. 1 and 2, the bag includes side walls 20 and 22, rear wall 24, front wall 26, top wall 28, and bottom wall 30. The walls of the bag define a chamber 32 in which a garment or garments to be freshened are placed. A zipper 34 on front wall 26 selectively provides access to the chamber 32. The zipper is preferably rustproof since a portion of it resides in a humid environment. A door or any other conventional means can also provide access to the chamber. With particular reference to FIG. 2, the side walls 20 and 22 are spaced apart from one another such that a garment hung in the chamber 32 does not contact the side walls and space is provided

between the side walls and the garment so that the steam or chemical compositions used to freshen the garment can easily circulate in the chamber. Rear wall 24 is spaced from front wall 26 such that a plurality of garments can be hung in the chamber 32 without contacting the rear wall or the front wall, or each other, and that steam or chemical compositions used to freshen the garment can circulate around the garments hung in the chamber. To this end, spacers 36 can be employed on a clothes rod 38 on which is mounted to the bag 12 by any conventional means. Alternatively, a smaller version could be provided where the front wall is spaced from the rear wall to allow only one garment to be placed in the chamber.

[0024] The bag 12 includes openings 42 and 44 that receive conduits through which steam or other chemicals pass that will treat the clothing. The openings 42, 44 can be formed in any wall in the bag, and in the embodiment shown they are formed in the bottom wall 30. The conduits, along with the steam or chemical compositions that pass through them, will be described in greater detail below. The bottom wall 30 can also have a fan 14 mounted to it. The fan could also be mounted elsewhere in the chamber, so long as it promotes air circulation inside the chamber. The fan can be replaced with any conventional device that promotes circulation of air inside the chamber 32 for dispersing the steam or chemicals in the chamber so that they circulate around the clothing.

[0025] Along with the bag 12 and the fan 14, the garment freshening device 10 also includes the base unit 16. The base unit houses a steam generating system and a chemical mist generating system. The steam generating system provides steam to the chamber 32 to de-wrinkle the clothes. The

chemical mist generating system provides a chemical mist to the chamber to deodorize and/or de-wrinkle the clothing. While both steam and a chemical composition are shown as entering the chamber 32, it should be appreciated that only one or the other could be used, or that two different chemical compositions, perhaps one of which is heated, could be used without also using steam.

[0026] Referring now to FIG. 3, the base unit 16 includes a housing 50 having a first removable lid 52 covering the steam generating system and a portion of the chemical mist generating system. The housing also includes a second removable lid 54 that partially covers the chemical mist generating system.

[0027] Referring to FIGS. 3, 4, and 5, the steam generating system includes a reservoir 60, a steamer 62, controls, a delivery pipe 64, and a power supply.

Referring specifically to FIG. 4, the reservoir 60 includes an outlet 66 in communication with a water delivery tube 68. Referring to FIG. 5, the water delivery tube 68 is in communication with an inlet 70 of the steamer 62. The inlet 70 is in communication with a heating unit 72 of the steamer that heats the water delivered from the reservoir to produce steam. A pump (not shown) can be provided to deliver the water from the reservoir 60 to the steamer 62.

Alternatively, water delivery can be simply by gravity. A pump is preferable to allow a constant flow of water to the steamer. The steam exits the steamer 62 via the steam delivery tube 64 (FIG. 3) which communicates with an intermediate pipe 74 (FIG. 1) which is received in the opening 42.

Accordingly, steam is delivered into the chamber 32 of the bag 12.

[0028] The steamer 62 is powered through electricity delivered via cord 80 (FIG. 3) that can be plugged into an AC outlet. A power switch 82 connected

to the steamer via wires 84 controls the delivery of electrical current to the steamer 62.

[0029] In addition to the power switch, electronic controls 86 can also regulate the electricity delivered to the steamer 62. Referring to FIGS. 3 and 4, the control buttons 86 can include switches to control the humidity and flow of steam to the chamber. The control buttons can be used to set the desired humidity for the chamber. Temperature and humidity sensors can be disposed in the chamber and communicate with the steamer 62 through circuits (not shown) connected to the electronic controls to regulate the humidity in the chamber. Other controls can be provided to regulate the time for delivery or amount of steam to be delivered to the chamber.

[0030] Referring to FIG. 4, along with the water reservoir 60, the housing 50 can define a steamer compartment 90 that receives the steamer 62. The steamer compartment remains dry and is large enough to house the steamer such that the steamer will not contact the walls of the reservoir 66 or the housing 50 since the steamer is hot. The steamer 62 can be mounted on an underside of the first removable lid 52 as shown in FIG. 5. As mentioned, instead of steam, one or more chemicals, or a mixture of water and one or more chemicals can be heated in the steamer to provide the desired de-wrinkling of garments.

[0031] The base unit 16 also includes a chemical mist generating system. Referring to FIGS. 4 and 6, the chemical mist generating system includes a reservoir 96, a mister 102, controls, a chemical mist delivery tube 104, and a power source. Referring specifically to FIG. 4, the reservoir 96 stores a chemical composition that will be transformed into a mist which will be

delivered to the chamber 32 of the bag 12. The reservoir communicates with a mister chamber 98 via a reservoir outlet 100 having a conduit (not shown) connected to the chamber. The chamber and the reservoir are made of a washable material, because a buildup of film can occur after considerable use.

[0032] The chemicals stored in the reservoir are compositions for odor and wrinkle control of garments. Examples of such compositions are disclosed in U.S. Patent Nos. 5,968,404 and 6,001,343, both of which are incorporated herein by reference in their entireties. The chemicals which can be used in this embodiment of the present invention include Downy® wrinkle release formula and Febreze® fabric spray, both distributed by Procter and Gamble. Of course, a variety of other known chemicals for this purpose can also be used.

[0033] The mister 102 is disposed in the bottom of the chamber 98. The mister 102 in the preferred embodiment is an ultrasonic misting device. An ultrasonic misting device uses a metal diaphragm that vibrates liquids at an ultrasonic frequency to produce a cool fog or mist. An ultrasonic misting device is preferred so that no boiling will occur of the chemical compositions used for deodorizing and/or de-wrinkling. Any conventional apparatus that produces a fog or mist can replace the chemical mister 102.

[0034] The chemical composition enters the chemical mister 102 where it is turned into a cool fog or mist that is delivered through the chemical mist delivery tube 104 to an intermediate tube 106 which is inserted into opening 44 in the bottom of the bag 12. Accordingly, a chemical mist is provided to the chamber 32.

[0035] The mister 102 is run by electricity delivered through a power cord 108 connected to the mister 102. The power cord 108 can plug into an AC outlet.

In an alternate embodiment, as opposed to having two power cords, one power cord can be used to deliver power to both the steamer 62 and the mister 102. Furthermore, other power supplies could be used, including but not limited to, DC power, for example, from batteries, or other power sources.

[0036] The mister is controlled via electronic controls. A mister switch 110 is disposed on the housing 50 which can open and close a circuit (not shown) between the power supply and the mister. Control buttons 112 can also be electrically connected to the mister 102 to control the amount of flow of chemical composition into the chamber 32.

[0037] A refill indicator 114 is disposed on the housing 50. The refill indicator is electrically connected to a float 116 connected to a float switch 118 such that when the reservoir 100 is out of chemical the float switch 118 is activated to turn on a light in the indicating device 114. Other conventional mechanisms can be used to indicate that the reservoir is empty.

[0038] The housing also includes a display panel 124. The display panel can display such information as the temperature and humidity of the chamber 32.

Accordingly, temperature and humidity sensors would be included in the chamber and communicate with the display panel 60. The display panel can also display other information, such as whether the freshening cycle is complete or what stage of the process it is in, as well as other information.

[0039] Referring now to FIGS. 7 and 8, a second embodiment of a clothes freshening device 150 is shown. The clothes freshening device 150 includes a bag 152, a fan (not shown), and a base unit 154. The bag 152 includes a

hard top 156. Arms 158, 160 depend from the hard top 156. A hanging rod 162 spans to interconnect the arms 158 and 160. A garment G can be hung on a coat hanger on hanging rod 162. Hooks 164 attach to a top of the hard top 156. As seen in FIG. 8, the hooks releasably attach to the hard top 156. The hooks are permanently attached to a cord 166, which is attached to an inside portion of the hard top. An opening 168 having a shape of the hook 164 is formed in the hard top 156 such that the hook can be placed in the opening. The hard top also includes a handle 170 so that the clothes de-wrinkler and deodorizer can be easily carried. The hard top also includes a contoured lower edge 172 that has a complementary shape to an upper edge 174 of the base unit 154. Accordingly, when the bag 152 collapses for storage the lower edge 172 of the hard top 156 matches the upper edge 174 of the base unit 154 as shown in FIG. 8. The hard top 156 and the base unit 154 include a latching mechanism (not shown) to selectively connect the hard top to the base unit when the bag is collapsed into a storage position.

[0040] The bag 152 also includes a zipper 176 formed in an upside down U-shaped configuration. Accordingly, a large opening is provided to allow the garment G to be placed inside the bag 152.

[0041] The base unit 154 is somewhat similar in construction to the base unit 18 disclosed in FIGS. 1-6. The base unit and the embodiment shown in FIG. 7 is directly connected to and depends from the bag 152. Accordingly, intermediate tubes are not noticeable and/or not needed. Furthermore, the control panel has a different configuration than that disclosed and FIGS. 1-6; however, the functions described with regards to the steam generating system and the chemical mist generating system can be similar for this embodiment.

[0042] With reference now to FIG. 8, the base unit 154 includes a removable drawer 178. The removable drawer defines three separate reservoirs (not shown). A first chemical mist delivery tube 180 communicates with a first chemical reservoir. A steam delivery tube 182 communicates with a water reservoir. A second chemical mist delivery tube 184 communicates with a second chemical reservoir. In this embodiment, one chemical reservoir could hold a deodorizing chemical and a second chemical reservoir could hold a de-wrinkling chemical composition. If desired, more than three reservoirs could be provided. Also the device could be suitably programmed to perform different de-wrinkling or deodorizing cycles, using one or more of the three fluids discussed herein, depending on the type of garment being held in the bag 152 and depending on the wishes of the user.

[0043] FIG. 9 discloses a pair of weights W selectively fastened to the cuffs of a pair of pants P by conventional clips C. The weights can be attached to the pants prior to their insertion into the bag. The weights facilitate the de-wrinkling process by providing a downward force on the pants; therefore, smoothing out the fabric of the pants. Other wrinkle-release mechanisms such as bungee cords attached to the pants and the base unit, or other conventional systems to smooth out the fabric can also be used to facilitate the de-wrinkling process. Such aids to de-wrinkling could also be employed with other garments, such as shirts, blouses, dresses, skirts or the like.

[0044] In use, the clothes freshening device can employ a high temperature gas (for example, steam) to de-wrinkle garments in combination with a lower temperature chemical mist to deodorize and/or de-wrinkle the garment. Of course, heated fluids other than water could be used. However, it is beneficial

to couple the use of a low cost solution such as water to generate steam to de-wrinkle the clothing in concert with a more expensive chemical to deodorize and/or de-wrinkle the clothing. Also the fan can be employed to promote circulation of the steam and/or the chemical mist inside the enclosure to surround all sides of the garment being treated.

[0045] As appreciated, in one embodiment of the method used to freshen the clothing, the heated fluid, such as steam, will be introduced into the enclosure at a different time interval (either before or after) than the introduction of the chemical mist. This may serve to lessen the possibility that the chemical compositions will be destroyed by the heat of the steam. Also, chemical compositions that can withstand temperatures at or near the boiling point of water can be employed. Such chemicals could be introduced into the garment enclosure simultaneously with the steam.

[0046] The invention has been described with reference to the preferred embodiments. Obviously, modifications and alterations will occur to others upon reading and understanding the preceding detailed description. It is intended that the invention be construed as including all such modifications and alterations.

What is claimed is: